

# THE DEVELOPMENT OF A TRAINING MODEL OF NON-FORMAL EDUCATION, BASED ON CONCEPTS OF CONSTRUCTIONISM AND SELF-DIRECTED LEARNING TO ENHANCE FUNCTIONAL COMPETENCIES OF PERSONNEL OFFICERS IN THE ROYAL THAI AIR FORCE

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**Abstract:** The objectives of this research were: 1) To analyze problems with training and to find out the training needs for developing a new training model of non-formal education and to enhance functional competencies of personnel in the Royal Thai Air Force. 2) To develop a training model of Non-formal education based on the concepts of Constructionism and Self-directed learning to enhance competencies of personnel officers in the Royal Thai Air Force. 3) To implement a training model of Non-formal education based on the concepts of Construction and Self-directed learning to enhance functional competencies of personnel officers in the Royal Thai Air Force. 4) To study factors and conditions of using a training model of Non-formal Education based on the concepts of Construction and Self-directed learning to enhance functional competencies of personnel in the Royal Thai Air Force. The research populations were all 60 personnel officers in the Royal Thai Air Force and the research samples was for commissioned officers: Pilots, Flying officers, Flight Lieutenants, Squadron Leaders and Wing Commanders. They all have had experiences in the Royal Thai Air Force for at least 3 years. The research procedure was divided into four steps. The first step was the data collection and analyzing. The second step was the development of a training model of non-formal education based on the concepts of Constructionism, Self-directed Learning and Creative Training Miracle Model to enhance functional competencies of personnel in the Royal Thai Air Force which is N-GRaDE with ITALIC Model which is composed of N: Need analysis, G: Goal setting, R: Resources, D: Decision method, E: Evaluation and ITALIC Model; I: Icebreaking, T: Tactical interest, A: Activities, L: Learning, I: Integrated sharing knowledge, C: Creative construction. The third step was implementing the training model of Non-formal Education “N-GRaDE with ITALIC Model” with 60 officers; the experimented group involves 30 officers and the control group involves the other 30 officers. The experimented group is going to be trained based on the Non-formal education development program by a researcher. The last process is to study the factor and conditions of using “N-GRaDE with ITALIC

Model” the training model of non-formal education based on the concepts of Constructionism, Self-directed learning and Creative Training Miracle Model

The research findings were as follows: The training model of non-formal education; “N-GRaDE with ITALIC Model” and now the researcher is analyzing and comparing the data of functional competencies of personnel officers in the sampling group that is using the training model “N-GRaDE with ITALIC Model”.

**Keywords:** Training Model of Non-formal Education, Constructionism, Self-directed Learning

## Introduction

Toward changing in the paradigms of competitive Knowledge-Based Society, Education is very important for people in learning continuously throughout their life or to have a lifelong learning in order to adapt themselves for change (Aunta Noppakun, 2546), especially in population who accomplished in formal or non-formal education needs to be able to learn and to practice knowledge and skills. Otherwise developing ability to apply the holistic knowledge to utilize in a suitable workplace or lifestyle. (Sumalee SangSri, 2551) The meaning of learning education in accordance with the concepts of non-formal education of Dewey (1916) Friere (1970) Illich (1971) Coombs. In addition, Ahmed (1974) Roger (1992) is to develop personal potential in appropriate for individuals. The Opportunities of educational learning is depended on the needs of individuals who wish to reinforce their own learning and to perform a higher performance in the enterprise or in the way of life.

Thailand recognizes the significance of education. The Act promotes non-formal education and the hospitality of the Year 2551, Section 8 the promotion and support of hospitality to focus the learner as a center of learning and to be on gaining knowledge and skills that meet their interests and need to enhance their better quality of life. Also contributing the lifelong learning and Section 9 focuses on learners who organized the support. This is the key to success in learning. Educational Development has emphasized the importance of learning and must be appropriate for learners. The learner-centered learns in an appropriate way for training and they can improve. Training adults to learn at any working age (Rylatt and Lohan, 1995) caused powerful capacity in operation and the affected performance. Knowledge skills and experience is the ability that has been hidden in individual called Intangible Asset, which can affect operational performance. McClelland (1973) called Competency, refers to the characteristic role of social skills. Intrinsic motivation that drives people to work hard and have synergy to achieve, so

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performance is critical to perform properly for governments and the private sector (William, 2002). Administrators are encouraged to work effectively with their knowledge skills and attitudes that are appropriate to correct deficiencies of the current and future work (Archanya Rattanaubon, 2540).

Training is a form that can promote learning in adults at work because the training is the learning system to build and enhance the knowledge, skills and attitudes of the individuals to improve and increase operational efficiency (Goldstein, 1993). The form of training has several ideas, such as programs for training of Tyler (1949), Houle (1972, 1996), Knowles (1980), Boyle (1981), Nadler (1982), Boone (1985), Sork and Caffarella (1989), Cervero and Wilson (1994, 1996), Rylatt and Lohan (1995), Rothwell and Cookson (1997), Milano with Ullius (1998), and Caffarella (2002). The main goal of the training program is an effort to develop the trainees to meet the needs of themselves and the needs of training managers as well. It is a chance to change the trainees' behavioral treatment more effectively. But the problem with the training outcome is not the aim. Particularly this education system found that most of the trainees lack the ability to learn by themselves. The lack of knowledge development that can lead to action after training is not beneficial to themselves or agencies, as they should. It is not economical for the budget. Trainers also play a role that reflects the problems, and they are not resolved (Pitikarn Prajimpan, 2550). In addition, they found that trainers in traditional forms with most training methods focused on teacher-centered. Focus on content- knowledge transfer that enables trainees with knowledge less suffering in the classroom. The result is that people lack production quality (Praves Wasi, 2541).

The Royal Thai Air Force has to be focused on training to improved performance in the government officers and to discharge effectively. From executive interview (Chom Runkasarn & Yunyong Kunttasorn, interview, 2551) it shows the same opinion about the importance of education and training to improve performance for the Air Force troops. According to the Air Force officials' discussion of the military operations of all units in the Air Force. Class rank Lieutenant to captain number 64 (the Discussion Government Troops, 2551) demonstrates capacity performance's three critical reasons ; 1) the ability to self -learn consistently, 2) ability to train in communication skills, and 3) the ability to solve problems and make decisions. The Development for study training (Narongwit Santong, 2547), the researcher analyzed that to improve the performance of the Air Force with appropriate training to use Creative Training Miracle of Rylatt and Lohan (1995) for these 3 main reasons; 1) The objective of the program focuses on skills development and increases the students' ability with the needs to improve performance and acquire more troops. This program can be used in the workplace 2) Design programs focused on self-learning. This is consistent with the need to develop the ability to learn self-consistency of the government troops and 3)

Focus on culture and goals of the organization that are different from programs that are not focused. The Air Force is an organization with different cultures and goals than other organizations. Emphases on context and corporate culture have contributed to the success of the operation. The five stages of operations are 1) learning and self-diagnostic needs, 2) targeting needs, 3) to find resources 4) deciding how to learn and 5) evaluate progress in learning and knowledge.

Promoting creativity and self-learning is a key factor in the development. Limited government power, the idea of creation by intelligent focused learning (Papert, 1999). The act is to enable them to create a sense of self mainly four kinds; a) learning by taking action or learning by doing, that focused on testing, practicing activities and work 2) learning through doing the project (Project-Based Learning) that creates opportunities of interest. Learn to find causes in depth and make decision to manage them. 3) The essentials of learning are to be Child-Centered Learning that focuses on learner-centered. It is essential for students to build themselves in learning and 4) lifelong learning is continuous learning throughout one's life (Department of Non-Formal Education Foundation in conjunction with Pat, 2544). The learning process to improved performance of guests must be broadcast to the exchange of knowledge and practice (Merill, 1969 refer to Archanya Rattanaubon, 2542) Problems of teaching in the past; Most of the students lack the ability to learn by themselves. Lack of development knowledge into action. The concept of self-continuous learning (Brockett and Hiemstra, 1991) can solve such problems. Concerning instructional differences in personal and social context of different cultures. It is very important to reinforce and to drive this type of learning with self-consistency. Moreover, it is a self-mold integrated learning of self. Creative Training Miracle to the idea of Rylatt and Lohan (1995). The appropriate officials need to develop a bold new idea. Does the Military dare to do cultural context, like self-consistency, Communication Training, solve problems with their own decisions, and prepare projects that have proven to be necessary. In addition, to proceed with efforts and cooperation between many parties has been a challenge of developing a new format never before seen by the army. If no action is taken, the result in military development will not progress. The desired performance rating was truly the key to the success of military missions. Allowing the researcher to develop a model of training with the idea of creative intelligence and learning. Their continued capability to improve the performance of official Air Force line troops is essential.

## Objectives

1. To analyze the problem based training and training needs in the concepts of Constructionism and self-directed learning to enhance functional competencies of personnel officers in the Royal Thai Air Force.

2. To develop a training model based on the concepts of Constructionism and self-directed learning to

enhance functional competencies of personnel officers in the Royal Thai Air Force.

3. To implement a training model based on the concepts of Constructionism and self-directed learning to enhance functional competencies of personnel officers in the Royal Thai Air Force.

4. To study factors and conditions of using a training model based on the concepts of Constructionism and self-directed learning to enhance functional competencies of personnel officers in the Royal Thai Air Force.

### Research Hypothesis

1. The attendees in the experimental group that were using the training model now have higher functional competencies of personnel officers than before training.

2. The attendees in the experimental group that were using the training model now have higher functional competencies than personnel officers in the control group.

### Research Scopes

#### Variables of study

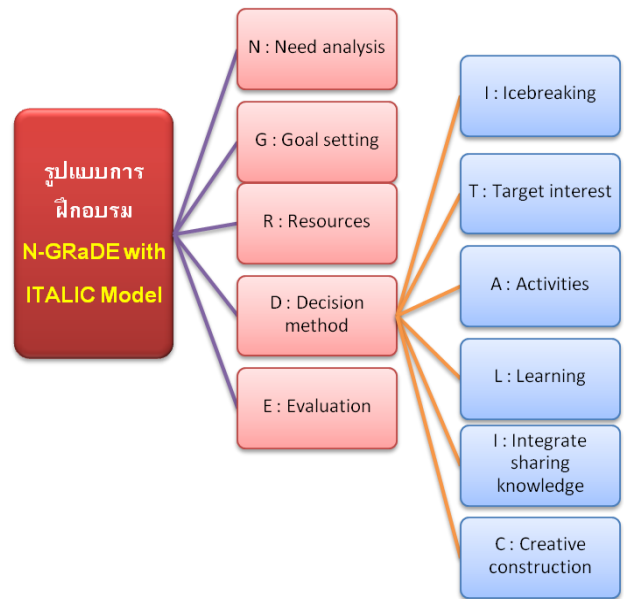
The variable of this study includes a training model based on the concepts of Constructionism and self-directed learning enhancements for functional competencies of the Royal Thai Air Force.

#### Population

The target population of this study was focused on personnel officers in the Royal Thai Air Force, commissioned officers (Pilot officers, Flying officers, Flight Lieutenant Officers, Squadron Leader officers and Wing Commander Officers) and have experiences in personnel department for more than 3 years.

#### Subjects of Learning

The subject of this study scoped 3 domains of learning in functional competencies (Self-directed learning, Communication skill and Decision making); Knowledge, Skill, Attitude which were totally composed of 6 activities in learning: Knowledge management (KM), Lego, Micro Worlds Program, “Pencil as a teacher”, “Pencil as a teacher” and Project Management.



**Figure 1: Training Model  
“N-GRaDE with ITALIC Model”**

To analyze the concepts of Constructionism, Self-directed learning and Creative Miracle Model; a kind of training model, and then synthesis to the new training model that is “N-GRaDE with ITALIC Model” the meaning :

- N - Need analysis; to find needs of training
- G - Goal setting; to set goals from training
- R - Resources; to prepare resources for training
- D - Decision method; to find the way of training that is ITALIC Model
- I - Icebreaking; to build the relationship between the attendances
- T - Target Interest; the attendances listen to the story with eager attention
- A - Activities; diversity of activities
- L - Learning; learning by doing
- I - Integrated Sharing Knowledge; to use the power of reason, makes judgments, to share knowledge and how to learn effectively
- C - Creative Construction; to have new ideas and built something or to innovate new things that useful for their work

**Table 1: Subjects of Learning**

	Knowledge	Skill	Attitude
Self-directed learning (SDL)	KM	KM Micro Worlds	SDL
Communication skill (CS)	Activities “Pencil as a teacher”	Micro Worlds	CS
Decision making (DM)	Activities “Wisdom Bag” Project Management	Lego	DM

### Activities for Training

- Knowledge Management (KM)
- Lego
- Micro Worlds
- Activities “Pencil as a teacher”
- Activities “Wisdom Bag”
- Project Management

E - Evaluation; to evaluate the functional competencies of the attendees that using this training model by comparing; before training, after training and after training for 3 months (repeated measure of competencies)

### Ratio of Competencies Evaluation

**Table 2: Ratio of Competencies Evaluation**

Before Training	After Training	After Training 3 months
Attendances; self-assessment 40%	Attendances; self-assessment 40%	Attendances; self-assessment 40%
Boss; assessment the attendances 60%	Trainer; assessment the attendances 60%	Boss; assessment the attendances 60%
Training	Activities of training	Tools
Trainer; assessment the attendances 60%	Knowledge management (KM)	-Observation form
	Lego	-Testing form
	Micro Worlds Program	
	“Pencil as a teacher”	-Assessment form
	“Wisdom Bag”	
	Project Management	
	6 activities	15 forms

### Research Definitions

Constructionism is a kind of theory that refers to the ability to create new knowledge needs to learn those things. By thinking creatively and learn through the activities or projects that use the manual that is useful to their agencies and under the constraints of resources to the process; 1) prepared by an agreement in operation. 2) The need to learn 3) Design of self and the agreement of the group 4) Implementation of the project or the design of learning to think independently, 5) Presentation of the operation. 6) Together to exchange ideas to improve 7) Support for learning resources.

Self-directed learning is a kind of theory that refers to self-learning by goal setting and finding the way to learn effectively for him/her.

Competency refers to knowledge, skills and attributes required to work for success. This can occur in individuals who develop the ability to learn and experience as an individuals. This is demonstrated when the external behavior of the action appears.

Functional Competencies of Personnel Officers in the Royal Thai Air Force refers to knowledge and skills

gained from experience in the line troops, and call on other skills that can be applied to the job. The tools necessary to work successfully are 1) To be consistent 2) to have adequate communication skills 3) to possess effective decision-making skills and 4) to have tactical problem solving skills.

Personnel Officers means a person or government official who works in the human resources function (Human Resource), also called line military science, or professional personnel or human resources worker.

Training means the process of learning a system to create or enhance the knowledge skills and attitudes needed to perform or limit the performance of individuals and can increase operational efficiency. Base training model with the concept of creative intelligence and concept of self-learning continuously, under the concept of Creative Training Miracle program were shown in training elements include instructional activities and readiness for action in human resource time and materials budget.

### Expected Benefits

1. Understanding the context and needs of training to enhance functional competencies of personnel officers in the Royal Thai Air Force.

2. Synchronizing the training model of non-formal education that meet the objectives of training and appropriate to enhance functional competencies of personnel officers in the Royal Thai Air Force; Self-directed learning, Communication skills and Decision-making.

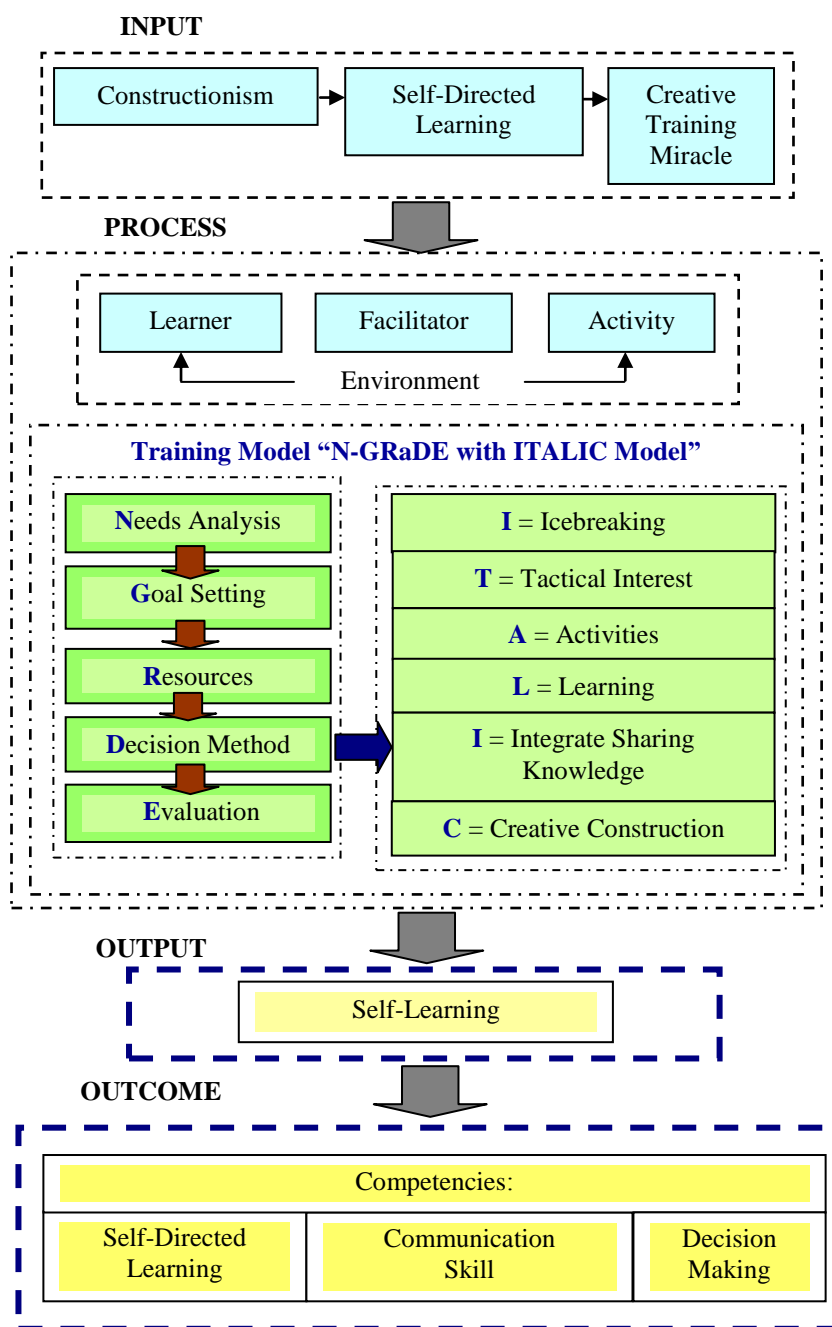
3. This type of training model is designed to develop functional competencies of personnel and take the next step in producing real THINKERS in the workplace of the Royal Thai Air Force. The expectation of this type of training model is to be applied to the Royal Thai Armed Forces.

4. The Holistic of knowledge in training can improve the trainees by themselves in continuous self-directed learning and become creative innovators.

### Relevant Literatures and Researches

1. Constructionism concepts, theories and principles
2. Self-directed Learning concepts, theories and principles
3. Training type and process
4. Creative training miracle concepts and process
5. Competencies concepts and principle
6. Knowledge management concepts, principle and process
7. Project management concepts, principle and process
8. Relevant researches

## Conceptual Framework



**Figure 1: Conceptual Framework**

### Research Procedures

In terms of methodologies, the researcher applied quasi-experiment, quantitative and content analysis approaches; and limited the design to two- groups pretest and posttest. Therefore, the researcher had arranged this research into 4 phases: 1) Data collection and analyzing 2) Developing a training model of non-formal education based on the concepts of Constructionism, Self-directed learning and Creative Training Miracle Model 3) Implementing a training model of non-formal education based on the

concepts of Constructionism, Self-directed learning and Creative Training Miracle Model and 4) Studying the factors and conditions of implementing a training model of non-formal education based on the concepts of Constructionism, Self-directed learning and Creative Training Miracle Model

**Phase 1** Data collection and analyzing. -The researcher collected the necessary data to be applied in developing the training and found ways to enhance

functional competencies of personnel officers in the Royal Thai Air Force, as discussed below:

- 1.1) Analyzing strategies and policy related to personnel officers development in the Royal Thai Air Forces
- 1.2) Participating in seminars and workshops under the following topics: functional competencies and Constructionism
- 1.3) Interviewing the managers who are responsibilities for personnel management
- 1.4) Training need analysis of personnel officers in the Royal Thai Air Force
- 1.5) Reviewing literatures, documents and researches related to following concepts: competency, Constructionism, self-directed learning, training

**Phase 2:** Developing the training model based on Constructionism, Self-directed learning and Creative Training Miracle Model. -According to the useful concepts, theories and framework from related literatures from Thai and international resources in phase 1, the researcher analyzed the concepts of Constructionism, Self-directed learning and Creative Training Miracle for creating the training model

Context of the content of training programs from the following three concepts.

1. The concept of creation by intelligence. (Constructionism) of Papert (1999) focus on learning with the act of learning through projects (HANDS ON). By the learner-centered learning. Moreover, the students become creative. In addition, learn the value of continuous learning throughout life.

2. The concept of self-learning continuously. (Self-Directed Learning) of Brockett and Hiemstra (1991) is a belief in the potential of learning who can be responsible for their own learning. Independent decision-making and problem solving process and evaluate their own learning. The teacher must trust students to learn and adapt themselves with the role of adviser Facilitate learning and format a variety of learning activities. Moreover, have a good relationship with students. Moreover, allow students to learn with a quality and dedication that creates a positive attitude to learning although the problem cannot be learning problems with limits on society and culture.

3. Concepts training program of Creative Training of Miracle Rylatt and Lohan (1995) is the decision needs to learn by its self. Target their own learning. Recruiting resources conducive to learning. Deciding how their learning and evaluate their own methods of learning.

The researcher could initiate the procedures of developing the training model based on the concepts of Constructionism, Self-directed learning and Creative Training Miracle which have been synchronized the new model: N-GRaDE with ITALIC Model; N-Need analysis, G-Goal setting, R-Resources, D-Decision making, E-Evaluation and ITALIC; I-Icebreaking, T-Target Interest,

A-Activities, L-Learning, I-Integrated Sharing Knowledge, C-Creative Construction.

The researcher built the assessment tools for testing competencies of the attendances.

**Phase 3:** Implementing the training model. -After the inspection instruments research and training model to enhance functional competencies of personnel officers in the Royal Thai Air Force that led to the development of the actual trail with the target groups. The operation in Step 3 is conducted under the activities in the process of training model "N-GRaDE with ITALIC Model" and evaluated to follow up the functional competencies of personnel officers from the training model

**Phase 4:** Studying the factors and conditions of implementing the training model. -The research study commented on organizing, research assistants, the boss of the attendees and auxiliary experiment with factors including conditions and problems of using this training model "N-GRaDE with ITALIC Model" to enhance functional competencies of personnel officers in the Royal Thai Air Force

### Research Finding

The research findings were as follows : The training model of non-formal education ;"N-GRaDE with ITALIC Model" the researcher is now analyzing and comparing the data of functional competencies of personnel officers in the "TEST" group that was using the training model "N-GRaDE with ITALIC Model".

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